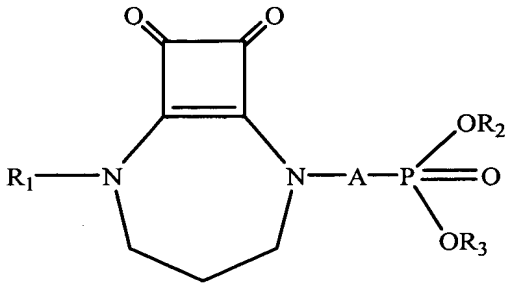
This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. ***(original)*** A pharmaceutical composition for intranasal administration comprising:

a) a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:



(I)

wherein:

R_1 is hydrogen;

A is $-(CH_2)_n-$, where n is 2; and

R_2 and R_3 are hydrogen; and

b) one or more pharmaceutically acceptable additives for forming a composition for intranasal administration.

2. ***(original)*** The composition of claim 1 wherein the composition has a pH ranging from about 3 to about 9.

3. ***(original)*** The composition of claim 1 wherein the pharmaceutically acceptable additives comprise at least one additive selected from liquid or solid carriers; absorbance enhancers; pH adjusting agents; metal chelating agents; buffers; thickening agents; humectants; or bioadhesives or combinations thereof.

4. ***(original)*** The composition of claim 3 wherein the pharmaceutically acceptable additives are present in the composition in an amount of from about 0.25 to about 95 weight percent, based on the total weight of the composition.

5. ***(original)*** The composition of claim 1 wherein the composition is in the form of a liquid selected from a solution, gel, suspension, dispersion or emulsion.

6. ***(original)*** The composition of claim 5 wherein the compound of formula (I) is present in the composition in an amount of from about 50 mg/ml to about 300 mg/ml.

7. ***(original)*** The composition of claim 1 wherein the composition is in the form of a powder.

8. ***(original)*** The composition of claim 7 wherein the powder has a particle size of less than about 250 microns.

9. ***(original)*** The composition of claim 8 wherein the powder has a particle size of less than about 180 microns.

10. ***(original)*** A method for treating at least one condition in a mammal selected from a cerebral vascular disorder selected from cerebral ischemia, cerebral infarction or cerebral vasospasm; cerebral trauma; muscular spasm; a convulsive disorder selected from epilepsy or status epilepticus; hypoglycemia; cardiac arrest; asphyxia anoxia; or spinal chord injury comprising administering intranasally to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

11. ***(original)*** The method of claim 10 wherein the mammal is human.

12. ***(original)*** A method for treating at least one condition in a mammal selected from glaucoma or diabetic end organ complications comprising administering intranasally

to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

13. ***(original)*** A method for treating at least one condition in a mammal selected from anxiety disorders; mood disorders; schizophrenia; schizophreniform disorder; or schizoaffective disorder comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

14. ***(original)*** The method of claim 13 wherein the anxiety disorder is selected from panic attack, agoraphobia, panic disorder, specific phobia, social phobia, obsessive compulsive disorder, posttraumatic stress disorder, acute stress disorder, generalized anxiety disorder, separation anxiety disorder, or substance-induced anxiety disorder; or the mood disorder is selected from bipolar disorders, depressive disorders selected from major depressive disorder, dysthymic disorder, or substance-induced mood disorder, or mood episodes selected from major depressive episode, manic episode, mixed episode, or hypomanic episode.

15. ***(original)*** The method of claim 13 wherein the mammal is human.

16. ***(original)*** A method for treating at least one neurodegenerative disorder in a mammal selected from Huntingdon's disease, Alzheimer's disease, amyotrophic lateral sclerosis, chronic dementia, or cognitive impairment comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

17. ***(original)*** The method of claim 16 wherein the mammal is a human.

18. ***(original)*** A method for treating Parkinson's disease comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

19. ***(original)*** The method of claim 18 wherein the mammal is a human.

20. ***(original)*** A method for treating at least one condition in a mammal selected from inflammatory diseases; fibromyalgia; complications from herpes zoster; prevention of tolerance to opiate analgesia; or withdrawal symptoms from addictive drugs comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

21. ***(original)*** A method for treating pain in a mammal comprising administering intranasally to a mammal in need thereof a therapeutically effective amount of the composition of claim 1.

22. ***(original)*** The method of claim 21 wherein the pain is at least one of neuropathic pain; cancer pain; visceral pain associated with pancreatitis or abdominal, pelvic or perineal regions; musculoskeletal pain associated with lower or upper back, spine, fibromylagia, temporomandibular joint, or myofascial pain syndrome; bony pain associated with bone or joint degenerating disorders; headaches; or pain associated with infections, sickle cell anemia, autoimmune disorders, multiple sclerosis, dental procedures, burns or inflammation.

23. ***(original)*** The method of claim 21 wherein the mammal is human.

24. ***(original)*** The method of claim 21 wherein the pain comprises neuropathic pain and is associated with at least one of diabetic neuropathy, peripheral neuropathy, post-herpetic neuralgia, trigeminal neuralgia, lumbar or cervical radiculopathies, fibromyalgia, glossopharyngeal neuralgia, reflex sympathetic dystrophy, casualgia, thalamic syndrome, nerve root avulsion, or nerve damage cause by injury selected from phantom limb pain, reflex sympathetic dystrophy or postthoracotomy pain,

cancer, chemical injury, toxins, nutritional deficiencies, or viral or bacterial infections.

25. ***(original)*** The method of claim 21 further comprising administering a therapeutically effective amount of at least one pain relieving agent.

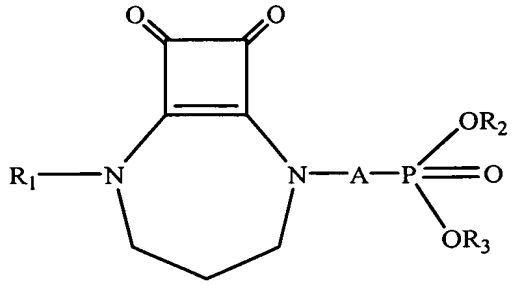
26. ***(original)*** A pharmaceutical composition for intranasal administration, in unit dosage or multiple dose form, comprising:

a) a therapeutically effective unit dosage or multiple dose for intranasal administration of [2-(8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl)ethyl] phosphonic acid; and

b) one or more pharmaceutically acceptable additives for forming a composition for intranasal administration.

27. ***(original)*** A pharmaceutical composition for intranasal administration comprising:

a) a therapeutically effective amount of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:



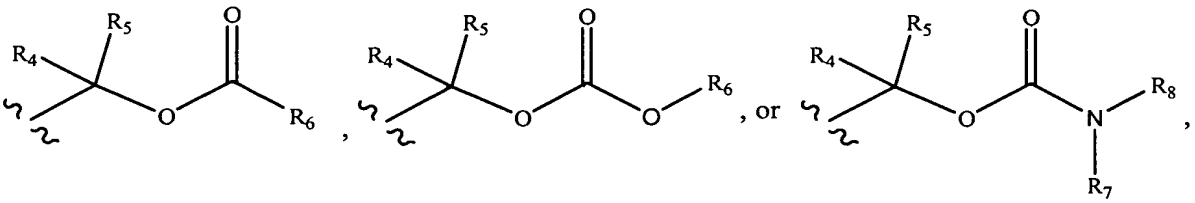
(I)

wherein:

R_1 is hydrogen, a C_1 to C_6 alkyl group, a C_2 to C_7 acyl group, a C_1 to C_6 alkanesulfonyl group, or a C_6 to C_{14} aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R_2 and R_3 are independently selected from hydrogen, or



with the proviso that at least one of R_2 and R_3 is not hydrogen;

R_4 and R_5 are independently selected from hydrogen, a C_1 to C_4 alkyl group, a C_5 to C_7 aryl group, a C_6 to C_{15} alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C_2 to C_7 alkenyl group, or C_2 to C_7 alkynyl group, or R_4 and R_5 may together form a spiro C_3 to C_8 carbocyclic ring;

R_6 is a C_1 to C_{12} linear or branched alkyl group, a C_2 to C_7 linear or branched alkenyl or alkynyl group, a C_5 to C_{13} aryl group, a C_6 to C_2 alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C_4 to C_8 cycloalkyl group, a C_5 to C_{16} alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R_7 and R_8 are independently selected from hydrogen, a C_1 to C_{12} linear or branched alkyl group, a C_2 to C_7 linear or branched alkenyl or alkynyl group, a C_5 to C_{13} aryl group, a C_6 to C_{21} alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R_7 and R_8 may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R_1 to R_8 group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C_1-C_6 alkyl group, or a C_1-C_6 alkoxy group; and

b) one or more pharmaceutically acceptable additives for forming a composition for intranasal administration.

28. ***(original)*** The composition of claim 27 wherein R_1 is H.

29. ***(original)*** The composition of claim 28 wherein A is an alkylene group having the formula $-(CH_2)_n-$, where n is 1 to 3.

30. ***(original)*** The composition of claim 29 wherein n is 2.

31. ***(original)*** The composition of claim 30 wherein R_4 and R_5 are independently selected from H or a C_1 to C_4 alkyl group, and R_6 is selected from a C_3 to C_{10} linear or branched alkyl group, a C_5 to C_7 aryl group, a 5- to 7-membered heteroaryl group, or a cycloalkyl group having in the ring 5 to 7 carbon atoms.

32. ***(original)*** The composition of claim 31 wherein R_6 is a C_5 to C_7 aryl group.

33. ***(currently amended)*** The composition of claim 27 wherein at least one compound of formula (I) is selected from:

a) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-7-phenyl-2,4,6-trioxa-3-phosphahept-1-yl benzoate;

b) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-8-propyl-2,4,6-trioxa-3-phosphaundec-1-yl-2-propylpentanoate;

c) ~~**2,2-dimethyl-propionic acid (2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxymethyl ester**~~
2,2-dimethyl-propionic acid {(2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxy} methyl ester;

d) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-1,5-dimethyl-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;

e) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahep- t-1-yl cyclohexanecarboxylate;

f) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1-(7)-en-2-yl)-ethyl]-phosphonic acid diisopropoxycarbonyl oxymethyl ester;

g) [2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl]-phosphonic acid bis[1-(benzoyloxy)ethyl] ester;

h) benzoic acid [2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-hydroxy-phosphinoyloxymethyl ester; or

i) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-phosphonic acid di-dimethylcarbamoyloxymethyl ester; or

a pharmaceutically acceptable salt thereof.

34. ***(original)*** The composition of claim 27 wherein the composition has a pH ranging from about 3 to about 9.

35. ***(original)*** The composition of claim 27 wherein the pharmaceutically acceptable additives comprise at least one additive selected from liquid or solid carriers; absorbance enhancers; pH adjusting agents; metal chelating agents; buffers; thickening agents; humectants; or bioadhesives or combinations thereof.

36. ***(original)*** The composition of claim 35 wherein the pharmaceutically acceptable additives are present in the composition in an amount of from about 0.25 to about 95 weight percent, based on the total weight of the composition.

37. ***(original)*** The composition of claim 27 wherein the composition is in the form of a liquid selected from a solution, gel, suspension, dispersion or emulsion.

38. ***(original)*** The composition of claim 37 wherein the compound of formula (I) is present in the composition in an amount of from about 50 mg/ml to about 300 mg/ml.

39. ***(original)*** The composition of claim 27 wherein the composition is in the form of a powder.

40. ***(original)*** The composition of claim 39 wherein the powder has a particle size of less than about 250 microns.

41. ***(original)*** The composition of claim 40 wherein the powder has a particle size of less than about 180 microns.

42. ***(original)*** A method for treating at least one condition in a mammal selected from a cerebral vascular disorder selected from cerebral ischemia, cerebral infarction or cerebral vasospasm; cerebral trauma; muscular spasm; a convulsive disorder selected from epilepsy or status epilepticus; glaucoma; diabetic end organ complications; hypoglycemia; cardiac arrest; asphyxia anoxia; or spinal chord injury comprising administering intranasally to a mammal in need thereof a therapeutically effective amount of the composition of claim 27.

43. ***(original)*** The method of claim 42 wherein the mammal is human.

44. ***(original)*** A method for treating at least one condition in a mammal selected from anxiety disorders; mood disorders; schizophrenia; schizophreniform disorder; or schizoaffective disorder comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 27.

45. ***(original)*** The method of claim 44 wherein the anxiety disorder is selected from panic attack, agoraphobia, panic disorder, specific phobia, social phobia, obsessive compulsive disorder, posttraumatic stress disorder, acute stress disorder, generalized anxiety disorder, separation anxiety disorder, or substance-induced anxiety disorder; or the mood disorder is selected from bipolar disorders, depressive disorders selected from major depressive disorder, dysthymic disorder, or substance-induced mood

disorder, or mood episodes selected from major depressive episode, manic episode, mixed episode, or hypomanic episode.

46. ***(original)*** The method of claim 44 wherein the mammal is human.

47. ***(original)*** A method for treating at least one neurodegenerative disorder in a mammal selected from Parkinson's disease, Huntingdon's disease, Alzheimer's disease, amyotrophic lateral sclerosis, chronic dementia, or cognitive impairment comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 27.

48. ***(original)*** The method of claim 47 wherein the mammal is a human.

49. ***(original)*** A method for treating at least one condition in a mammal selected from inflammatory diseases; fibromyalgia; complications from herpes zoster; prevention of tolerance to opiate analgesia; or withdrawal symptoms from addictive drugs comprising intranasally administering to a mammal in need thereof a therapeutically effective amount of the composition of claim 27.

50. ***(original)*** A method for treating pain in a mammal comprising administering intranasally to a mammal in need thereof a therapeutically effective amount of the composition of claim 27.

51. ***(original)*** The method of claim 50 wherein the pain is at least one of neuropathic pain; cancer pain; visceral pain associated with pancreatitis or abdominal, pelvic or perineal regions; musculoskeletal pain associated with lower or upper back, spine, fibromylagia, temporomandibular joint, or myofascial pain syndrome; bony pain associated with bone or joint degenerating disorders; headaches; or pain associated with infections, sickle cell anemia, autoimmune disorders, multiple sclerosis, dental procedures, burns or inflammation.

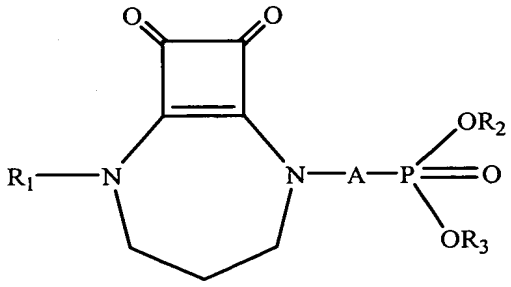
52. ***(original)*** The method of claim 50 wherein the mammal is human.

53. ***(original)*** The method of claim 50 wherein the pain comprises neuropathic pain and is associated with at least one of diabetic neuropathy, peripheral neuropathy, post-herpetic neuralgia, trigeminal neuralgia, lumbar or cervical radiculopathies, fibromyalgia, glossopharyngeal neuralgia, reflex sympathetic dystrophy, casualgia, thalamic syndrome, nerve root avulsion, or nerve damage cause by injury selected from phantom limb pain, reflex sympathetic dystrophy or postthoracotomy pain, cancer, chemical injury, toxins, nutritional deficiencies, or viral or bacterial infections.

54. ***(original)*** The method of claim 50 further comprising administering a therapeutically effective amount of at least one pain relieving agent.

55. ***(original)*** A pharmaceutical composition for intranasal administration, in unit dosage or multiple dose form, comprising:

a) a therapeutically effective unit dosage or multiple dose for intranasal administration of at least one compound of formula (I) or a pharmaceutically acceptable salt thereof:



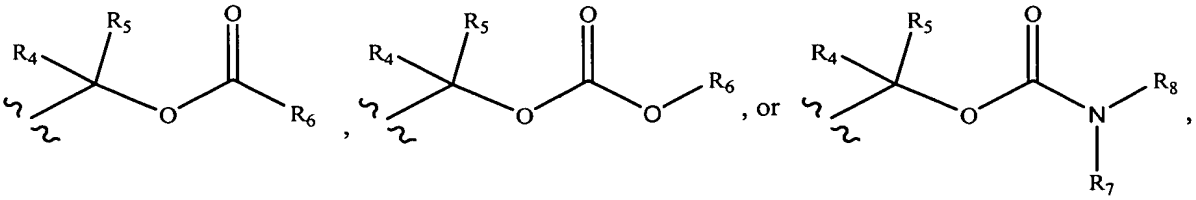
(I)

wherein:

R_1 is hydrogen, a C_1 to C_6 alkyl group, a C_2 to C_7 acyl group, a C_1 to C_6 alkanesulfonyl group, or a C_6 to C_{14} aroyl group;

A is alkylene of 1 to 4 carbon atoms or alkenylene of 2 to 4 carbon atoms;

R_2 and R_3 are independently selected from hydrogen, or



with the proviso that at least one of R_2 and R_3 is not hydrogen;

R_4 and R_5 are independently selected from hydrogen, a C_1 to C_4 alkyl group, a C_5 to C_7 aryl group, a C_6 to C_{15} alkylaryl group having 5 to 7 carbon atoms in the aryl ring, a C_2 to C_7 alkenyl group, or C_2 to C_7 alkynyl group, or R_4 and R_5 may together form a spiro C_3 to C_8 carbocyclic ring;

R_6 is a C_1 to C_{12} linear or branched alkyl group, a C_2 to C_7 linear or branched alkenyl or alkynyl group, a C_5 to C_{13} aryl group, a C_6 to C_2 alkylaryl group having 5 to 13 carbon atoms in the aryl moiety; a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, a C_4 to C_8 cycloalkyl group, a C_5 to C_{16} alkylcycloalkyl group having 4 to 8 carbon atoms in the cycloalkyl ring;

R_7 and R_8 are independently selected from hydrogen, a C_1 to C_{12} linear or branched alkyl group, a C_2 to C_7 linear or branched alkenyl or alkynyl group, a C_5 to C_{13} aryl group, a C_6 to C_{21} alkylaryl group having 5 to 13 carbon atoms in the aryl moiety, a 5 to 13 membered heteroaryl group, a 6 to 21 membered alkylheteroaryl group having 5 to 13 members in the heteroaryl moiety, or R_7 and R_8 may together form a cycloalkyl or heterocycloalkyl group having in the ring 4 to 8 carbon atoms and optionally one to two atoms selected from nitrogen, oxygen or sulfur;

wherein any R_1 to R_8 group having an aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety may optionally be substituted on the aryl, heteroaryl, cycloalkyl or heterocycloalkyl moiety with 1 to about 5 substituents

independently selected from a halogen atom, a cyano, nitro or hydroxyl group, a C_1-C_6 alkyl group, or a C_1-C_6 alkoxy group; and

b) one or more pharmaceutically acceptable additives for forming a composition for intranasal administration.

56. ***(currently amended)*** The composition of claim 55 wherein at least one of the compound of formula (I) is selected from:

a) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-7-phenyl-2,4,6-trioxa-3-phosphahept-1-yl benzoate;

b) 3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]-ethyl}-3-oxido-7-oxo-8-propyl-2,4,6-trioxa-3-phosphaundec-1-yl 2-propylpentanoate;

c) ~~**2,2-dimethyl-propionic acid (2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxymethyl ester**~~
2,2-dimethyl-propionic acid{(2,2-dimethyl-propionyloxymethoxy)-[2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]-non-1(7)-en-2-yl)-ethyl]-phosphinoyloxy} methyl ester;

d) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-1,5-dimethyl-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;

e) 7-cyclohexyl-3-{2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1(7)-en-2-yl]ethyl}-3-oxido-7-oxo-2,4,6-trioxa-3-phosphahept-1-yl cyclohexanecarboxylate;

f) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1-(7)-en-2-yl)-ethyl]-phosphonic acid diisopropoxycarbonyl oxymethyl ester;

g) [2-[8,9-dioxo-2,6-diazabicyclo[5.2.0]non-1 (7)-en-2-yl]ethyl]-phosphonic acid bis[1-(benzoyloxy)ethyl] ester;

h) benzoic acid [2-(8,9-dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-hydroxy-phosphinoyloxymethyl ester; or

i) [2-(8,9-Dioxo-2,6-diaza-bicyclo[5.2.0]non-1(7)-en-2-yl)-ethyl]-phosphonic acid di- dimethylcarbamoyloxymethyl ester; or

a pharmaceutically acceptable salt thereof.